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***Mycoplasma pneumoniae* Circulating in Indiana**

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Each year, an estimated 2 million cases and 100,000 pneumonia-related hospitalizations occur in the United States due to infection from *Mycoplasma pneumoniae* (1). This infection is not reportable under the Communicable Disease Reporting Rule for Physicians, Hospitals, and Laboratories, 410 IAC 1-2.3. (The Rule is available at http://www.in.gov/isdh/publications/comm_dis_rule.pdf.) However, under the same rule, an unusual occurrence of any disease is to be reported to the health department immediately. (See related article in the Outbreak Spotlight feature of this issue.)

Recently, astute school nurses and public health nurses reported a large respiratory outbreak in central Indiana. At least 50 cases of chest x-ray confirmed pneumonia have been identified among residents, mainly school children, from Boone, Hamilton, and Marion Counties since August 2006. At least 50 additional cases of pneumonia were diagnosed by a physician. Several cases reported contact with someone else who was ill, or from other ill students having a similar illness, prior to developing symptoms, suggesting person-to-person transmission. The Indiana State Department of Health (ISDH), in collaboration with the Boone, Hamilton, and Marion County Health Departments, actively investigated these cases and continues surveillance to identify additional cases. Symptoms have included fever (median: 102.3°F), headache, cough, fatigue, and pneumonia.

Two cases were confirmed positive for *Mycoplasma pneumoniae* by polymerase chain reaction testing at the ISDH Laboratory. Most cases have had no laboratory testing conducted to identify an agent of illness. *M. pneumoniae* is an uncommon cause of pneumonia in children younger than 5 years of age but is the leading cause of pneumonia in school-aged children. The last documented outbreak of *M. pneumoniae* in Indiana was in 2001, which is consistent with the finding that community-wide epidemics occur every 4-7 years. The incubation period is 2-3 weeks (range, 1-4 weeks). The reported duration of illness for cases of this outbreak has been 2½ weeks. The ISDH recommends considering a diagnosis of *M. pneumoniae* in patients, especially school-aged children and their contacts, exhibiting the above symptoms. However, antimicrobial prophylaxis for exposed contacts is not routinely recommended.

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The clinical features of *Mycoplasma pneumoniae* include upper respiratory tract infections with fever, cough, malaise, and headache, which is consistent with the recent outbreak. It is a frequent cause of atypical pneumonia and peaks late summer/fall, most frequently in children/young adults but also in the elderly (2). The disease is transmitted person to person by contact with infectious respiratory secretions. Radiologically confirmed pneumonia usually develops in 5-10 percent of the cases. Approximately half of the known central Indiana outbreak cases had x-ray confirmed pneumonia. Physicians and local health departments investigating this outbreak have reported that at least 50 percent of the patients did not have evidence of pneumonia upon auscultation; however, chest x-rays indicated pneumonia was present. Of the known cases, two have been hospitalized and released; no deaths have occurred. Diagnosis of acute infections is difficult, and early recognition of outbreaks continues to be a challenge (1).

Early identification and prompt initiation of control measures are key in preventing secondary cases in an outbreak. Preventive measures may include avoiding crowded living and sleeping quarters whenever possible, especially in institutions, barracks, and ships (4). If one is voluntarily or involuntarily detained in an institution, symptomatic individuals should be isolated until 48 hours after antibiotic therapy has been started. Diagnosis of an infected person should lead to an increased index of suspicion for *M. pneumoniae* in household members and close contacts, and therapy should be given if a contact develops compatible lower respiratory tract illness. (3).

Health care providers observing similar illness in patients, especially school-aged children, in other counties may want to consider submitting specimens for testing at the ISDH Laboratory for surveillance purposes. Health care providers and local health departments are strongly encouraged to submit specimens if a respiratory outbreak occurs in the community. Please contact Shawn Richards, Respiratory Epidemiologist, at 317.233.7740 for details on specimen submission.

References

1. Centers for Disease Control and Prevention, http://www.cdc.gov/ncidod/dbmd/diseaseinfo/mycoplasmapneum_t.htm
2. The ABX Guide: Diagnosis & Treatment of Infectious Diseases; Bartlett, Auwaeter, and Pham, eds. 1st ed. Montvale, NJ: Thomson PDR, 2005.
3. American Academy of Pediatrics. *Mycoplasma pneumoniae* Infections. In: Pickering LK, ed. *Red Book: 2003 Report of the Committee on Infectious Diseases*. 26th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2003: 443-445.
4. American Public Health Association. Mycoplasmal pneumonia. In: Heymann DL, ed. *Control of Communicable Diseases Manual*. 18th ed. Washington, DC: American Public Health Association; 2004: 417-419.

New Mumps Laboratory Recommendations

Wayne Staggs, MS
Epidemiologist

The Centers for Disease Control and Prevention (CDC) recently issued modified laboratory recommendations for testing of persons suspected

ISDH Laboratory Begins PCR Testing on Mumps Specimens

Effective immediately, the ISDH Laboratory will be conducting Polymerase Chain Reaction (PCR) testing on specimens collected for mumps analysis. Specimens will no longer be sent to the CDC for testing. It is anticipated that specimens will be tested at the ISDH twice weekly, thus eliminating the 1-2 week waiting period for results.

of having mumps. These recommendations were published in the MMWR on October 27, 2006. The changes in the recommendations are excerpted from the article as follows:

“Health-care providers should continue to remain alert for suspected mumps cases, conduct appropriate diagnostic testing, and report these cases to local or state health departments. At the initial visit, recommended specimens for laboratory testing include serum to test for mumps immunoglobulin M (IgM) antibodies and a swab from the parotid duct or other affected salivary gland ducts for viral isolation, reverse transcriptase-polymerase chain reaction testing, or both. Parotid duct swab is the preferred viral sample for mumps; urine samples are no longer recommended. The first (acute) serum specimen should be collected within 5 days of illness onset. If the IgM antibody titer is negative, a second (convalescent) serum specimen for IgM antibodies is recommended 2-3 weeks after onset of signs (e.g., parotitis) or symptoms; a delayed IgM response has been observed in patients with confirmed cases of mumps, especially in vaccinated persons. The paired serum specimens also can be used to detect a significant rise (as defined by the testing kit instructions) in immunoglobulin G (IgG seroconversion) if measured by enzyme-linked immunosorbent assay or a fourfold rise in titer if measured using plaque-reduction neutralization assays or similar quantitative assay.”

The entire MMWR article entitled “Brief Report: Update: Mumps Activity - United States, January 1-October 7, 2006” is available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5542a3.htm>.

Effective immediately, the ISDH will implement these recommendations. In addition to the above recommendations regarding serologic analysis, the ISDH encourages convalescent specimens on all patients even if the acute specimen result is positive. The recommendations from the ISDH are summarized as follows:

- Oral fluid from the parotid duct or other affected salivary gland ducts (buccal swabs) are the preferred specimen for viral isolation and PCR testing of mumps. Urine specimens should no longer be collected.
- Acute and convalescent serologic specimens should be collected on patients suspected of having mumps. The acute specimen should be collected within 5 days of onset of symptoms, and the convalescent should be collected 2-3 weeks following onset of symptoms.
- Specimens should be submitted to the ISDH Laboratory. Detailed instructions for collection, handling and shipping of specimens are available at the Indiana State Department of Health Web site, <http://www.in.gov/isdh/>. Click on Health Professionals and then Disease Information.

Mumps Incidence Update for Indiana

Although suspect cases continue to be reported in Indiana, mumps virus circulation is not currently being confirmed by laboratory analysis. Two confirmed and eight probable cases have been reported in Indiana in 2006, all of which had onsets from March through May.

These new recommendations are posted on the ISDH Web site (same address as above) and are included below so you will have immediate access to them.

MUMPS SPECIMEN COLLECTION AND ANALYSIS

For laboratory confirmation of the diagnosis of mumps, the ISDH recommends that health care providers collect buccal swabs for viral culture/PCR testing and paired sera for immunologic analysis.

Indiana State Department of Health Laboratory Testing Services

➤ Clinical Specimens

Clinical specimens should be collected from all suspected cases. Clinical specimens (buccal swab and throat swab) should be obtained for viral isolation in cell culture within 1-4 days after onset of symptoms if possible. However, specimens collected up to 9 days post-onset may be acceptable. Keep the samples cold (4C) or frozen (-70C). Avoid freeze-thaw cycles.

Parotid gland/buccal swabs of oral secretions may provide the best viral samples (urine specimens are no longer recommended). Use a plastic shaft/Dacron tip swab for collecting swab samples. Massage the parotid gland area (the space between the cheek and teeth just below the ear) for about 30 seconds prior to collection of the buccal secretions. The parotid duct (Stensen's duct) drains in this space near the upper rear molars. A throat swab (oropharyngeal or nasopharyngeal swab with a wire shaft/Dacron tip) can also be collected and added with the buccal swab. Place swab(s) in a tube containing 2-3 mls of viral transport medium (VTM) or other sterile isotonic solution (phosphate buffered saline or cell culture medium). Swabs can be frozen at -70C or held at 4C until shipment.

The Virology/Immunology Request Form, State Form 35212 (R3/5-03), available at <http://www.IN.gov/isdh/healthinfo/westnile/35212.pdf>, should be completed and sent with the specimens. *Please complete a separate form for each specimen.* Specimens should be shipped in an insulated container using ice packs or dry ice. If clinical specimens for viral isolation will be delivered via courier, pack specimens according to the shipping requirements for Category B Infectious Substances and route to:

Indiana State Department of Health Laboratories
Attn: Virology Lab
7230 Western Select Drive
Indianapolis, Indiana 46219

If specimens will be delivered via U.S. Postal Service, pack specimens according to U.S. Postal Service shipping requirements for diagnostic/clinical specimens and route to:

Indiana State Department of Health Laboratories
Attn: Virology Lab
P.O. Box 7203
Indianapolis, Indiana 46207-7203

➤ *Serologic Specimens*

Acute and convalescent serologic specimens should be collected on patients suspected of having mumps. The acute specimen should be collected as soon as possible after onset of symptoms (within 5 days is preferred) and submitted to the ISDH Laboratory after collection for initial IgM and IgG analysis. The convalescent serum specimen should be obtained 2-3 weeks after onset. For both specimens, submit at least 3 ml of serum in the plastic screw-capped vial provided in the mailing container (ISDH type 9A). Store and ship specimens cold (4C) (using ice packs). Serum specimens may be shipped without refrigeration in a suitable mailing container (e.g., ISDH type 9A). Serum is the preferred specimen, but 5-10 ml of whole blood is acceptable.

The Virology/Immunology Request Form, State Form 35212 (R3/5-03), available at <http://www.IN.gov/isdh/healthinfo/westnile/35212.pdf>, should be completed and sent with serologic specimens. If specimens will be delivered via U.S. Postal Service, route to:

Indiana State Department of Health
Virology/Immunology
P.O. Box 7203
Indianapolis, Indiana 46207-7203

If specimens will be delivered via courier/drop off, route to:

Indiana State Department of Health
Virology/Immunology
635 North Barnhill Drive, Room MS2023
Indianapolis, Indiana 46202

ISDH type 9A mailing containers and Virology/Immunology Request Forms can be obtained from the ISDH Laboratories by telephone at 317.233.8105 or by e-mail at containers@isdh.IN.gov. For questions, please contact the ISDH Laboratories at 317.233.8000.



OUTBREAK SPOTLIGHT....

Outbreak Spotlight is a regularly occurring feature in the Indiana Epidemiology Newsletter to illustrate the importance of various aspects of an outbreak investigation. The event described below highlights a recent investigation of a respiratory outbreak and the importance of laboratory testing to identify disease agents for appropriate implementation of control measures .

Mycoplasma pneumoniae Outbreak in a State Institution

Donna Allen
District 1 Field Epidemiologist

Shawn Richards, BS
Respiratory Epidemiologist

Background

On September 22, 2006, a local health department (LHD) notified the Indiana State Department of Health (ISDH) that eight individuals housed at a State institution had developed respiratory symptoms. The institution had notified the LHD of a possible respiratory outbreak in compliance with the Communicable Disease Reporting Law for Physicians, Hospitals, and Laboratories (410 IAC 1-2.3). Symptoms were characterized primarily by cough and pneumonia.

Epidemiologic Investigation

The LHD, ISDH, and the institution initiated a collaborative investigation of the outbreak. A questionnaire was developed which documented illness and contact information. The institution's staff members conducted interviews and completed questionnaires. Completed forms were forwarded to the ISDH Field Epidemiologist and then provided to the ISDH Respiratory Epidemiologist. The case definition was defined as any previously healthy person (staff or resident) who developed a cough and pneumonia-like symptoms on or after August 25, 2006.

Eight cases were identified. Age of the cases ranged from 30-40 years, with a mean of 39 years. The predominant symptoms included: cough (100%), pneumonia (100%), sore throat (66%), chills (57%), body aches (38%), and shortness of breath (57%) (see Table 1). The incubation period ranged from 1-4 weeks, with a median of 3 weeks (see Figure 1). Duration of symptoms varied from 5-16 days, with a mean of 10 days.

Table 1. Symptoms vs. Number of Cases

Total cases = 8

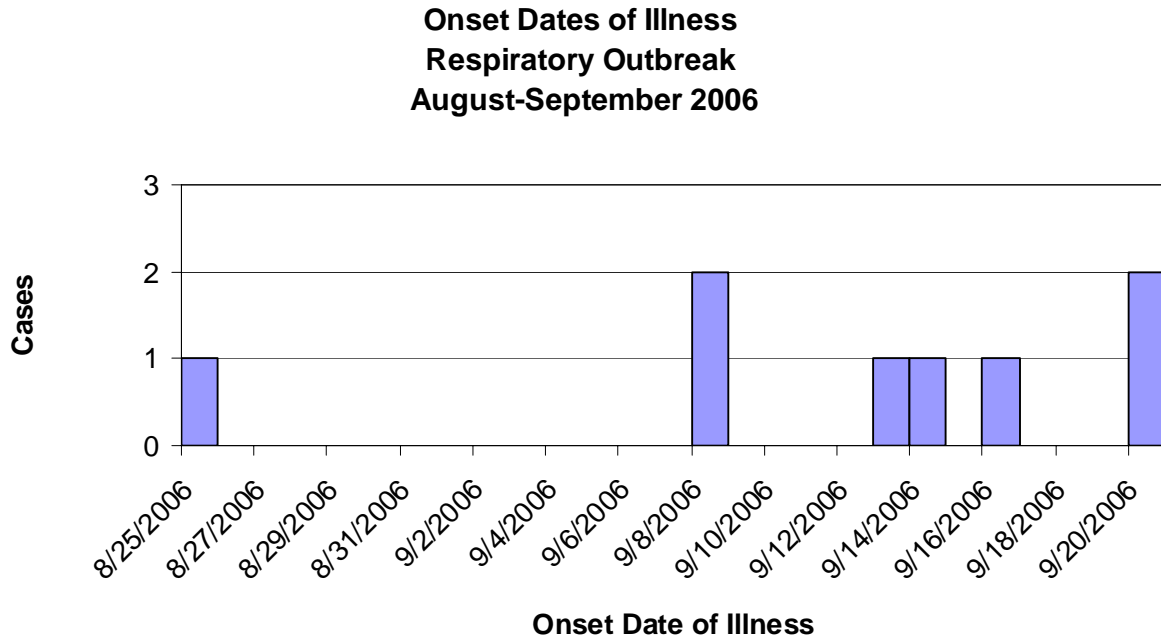
Symptom	Number	Percent*
Cough	8	100
Pneumonia	8	100
Sore Throat	3	37
Chills	4	50
Body Aches	3	37
Pulmonary Congestion	3	37
Fever (max: 101.5°F)	5	62
Vomiting	1	12
Rales	4	50

*Percent based on total number of cases

The institution staff forwarded a map of the facility to the ISDH. Cases were located on different wards of the facility. Cases were questioned about their contact with other residents, staff, or guests who were ill, and several cases responded that they had had contact with someone with a similar illness prior to their own illness onset. Those who were ill were isolated until 48 hours of antibiotic therapy were completed. Institution staff conducted surveillance for additional cases within the facility.

The institution's health care team provided digital pictures of the chest x-rays for five cases to the ISDH. Although a specific disease agent could not be identified from analysis of the questionnaires and x-rays, tuberculosis was ruled out. Clinical specimens were submitted to the ISDH Laboratories to assist in identification of a causative agent.

Figure 1.



Laboratory Results

The institution staff drew blood samples from the cases and submitted them to a private laboratory for serologic analysis of *Legionella*, *Mycoplasma pneumoniae*, and cold agglutinins. Sixteen nasopharyngeal swabs were submitted to the ISDH Laboratories. Three swab specimens tested positive for *M. pneumoniae* by reverse transcription-polymerase chain reaction (RT-PCR) testing. All swab specimens tested negative for influenza viruses and *Chlamydia pneumoniae*. Results obtained by the private laboratory were consistent with those from the ISDH.

Conclusion

This investigation confirmed that an outbreak of respiratory illness occurred among residents of a State institution during August-September 2006. The causative agent of this outbreak was *Mycoplasma pneumoniae*. Three nasopharyngeal swab samples were positive for this organism, and illness was compatible among all cases.

M. pneumoniae is a small bacterium that is transmitted from person to person through contact with infectious respiratory droplets. The Centers for Disease Control and Prevention (CDC) estimates approximately 2 million cases of this illness and 100,000 hospitalizations occur each year in the United States¹. *M. pneumoniae* is one of the most common agents of community-acquired pneumonia. Sporadic infections can occur throughout the year, while outbreaks are most common during the fall, typically peaking in 4-7 year cycles³. Outbreaks can occur in closed settings or as community-wide epidemics, which may not be immediately identified². The epidemic curve (see Figure 1) depicting the onset dates of cases indicates that this outbreak was most likely transmitted from person to person. In person-to-person outbreaks, cases become ill at different times from multiple exposures. The number of cases can gradually or sharply rise, plateau, then gradually decline. The incubation period of *M. pneumoniae* is 1-4 weeks,^{1,4} which was observed in this outbreak.

The institution, the LHD, and the ISDH collaborated on the investigation of this outbreak, completing all questionnaires, submitting digital pictures of confirmed pneumonia cases, and submitting laboratory samples. The institution initiated control measures, such as isolation and prophylaxis, to prevent secondary cases. The rapid analysis by the ISDH Laboratories was essential in identifying the causative organism. This would not have been possible without the assistance of staff members of the local hospital who provided the swabs. This outbreak had the potential to spread rapidly in a confined setting, and the prompt collaborative actions of the institution, the LHD, and the local hospital prevented that from happening.

In general, most outbreaks of respiratory illness can be prevented by strictly adhering to the following respiratory safety practices:

1. Thoroughly wash hands with soap and water after coughing, sneezing, using facial tissue, and/or caring for someone who is ill.
2. Cough or sneeze into your upper sleeve if possible. Discard used tissues promptly.
3. Avoid crowded living and sleeping quarters whenever possible, especially in institutions, barracks, and ships.
4. Frequently and thorough disinfect common areas in closed settings.
5. Investigate contacts and sources of infection to allow for clinical treatment of those who are ill and prophylaxis of contacts and family members if appropriate.

References

1. *Mycoplasma pneumoniae*. December 2000. Centers for Disease Control and Prevention Web site, <http://www.cdc.gov/dbmd/diseaseinfo/mycoplasmapneum t.htm>
2. Outbreak of Community-Acquired Pneumonia Caused by *Mycoplasma pneumoniae*—Colorado, 2000. Centers for Disease Control and Prevention. *MMWR*, March 30, 2001/50(12);227-230.
3. Outbreaks of *Mycoplasma pneumoniae* Respiratory Infection—Ohio, Texas, and New York, 1993. Centers for Disease Control and Prevention. *MMWR*, December 10, 1993/42(48)931,937-939.
4. American Academy of Pediatrics. *Mycoplasma pneumoniae* Infections. In: Pickering LK, ed. *2000 Red Book: Report of the Committee on Infectious Diseases*. 25th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2000: 408-410.



Training Room

INDIANA STATE DEPARTMENT OF HEALTH IMMUNIZATION PROGRAM PRESENTS:

Immunizations from A to Z

Immunization Health Educators offer this FREE, one-day educational course that includes:

- Principles of Vaccination
- Childhood and Adolescent Vaccine-Preventable Diseases
- Adult Immunizations
 - Pandemic Influenza
- General Recommendations on Immunization
 - Timing and Spacing
 - Indiana Immunization Requirements
 - Administration Recommendations
 - Contraindications and Precautions to Vaccination
- Safe and Effective Vaccine Administration
- Vaccine Storage and Handling
- Vaccine Misconceptions
- Reliable Resources

This course is designed for all immunization providers and staff. Training manual, materials, and certificate of attendance are provided to all attendees. Please see the Training Calendar for presentations throughout Indiana. Registration is required. To attend, schedule/host a course in your area or for more information, please reference

<http://www.IN.gov/isdh/programs/immunization.htm>

ISDH Data Reports Available

**The ISDH Epidemiology Resource Center has the following data reports
and the Indiana Epidemiology Newsletter available on the ISDH Web Page:**

http://www.IN.gov/isdh/dataandstats/data_and_statistics.htm

HIV/STD Quarterly Reports (1998-June 06)	Indiana Mortality Report (1999, 2000, 2001, 2002, 2003, 2004)
Indiana Cancer Incidence Report (1990, 95, 96, 97, 98)	Indiana Infant Mortality Report (1999, 2002, 2003, 2004)
Indiana Cancer Mortality Report (1990-94, 1992-96)	Indiana Natality Report (1998, 99, 2000, 2001, 2002, 2003, 2004)
Combined Cancer Mortality and Incidence in Indiana Report (1999, 2000, 2001, 2002)	Indiana Induced Termination of Pregnancy Report (1998, 99, 2000, 2001, 2002, 2003, 2004)
Indiana Health Behavior Risk Factors (1999, 2000, 2001, 2002, 2003, 2004, 2005)	Indiana Marriage Report (1995, 97, 98, 99, 2000, 2001, 2002)
Indiana Health Behavior Risk Factors (BRFSS) Newsletter (9/2003, 10/2003, 6/2004, 9/2004, 4/2005, 7/2005, 12/2005, 1/2006, 8/2006, 10/2006)	Indiana Infectious Disease Report (1997, 98, 99, 2000, 2001, 2002, 2003)
Indiana Hospital Consumer Guide (1996)	Indiana Maternal & Child Health Outcomes & Performance Measures (1990-99, 1991-2000, 1992-2001, 1993-2002, 1994-2003)
Public Hospital Discharge Data (1999, 2000, 2001, 2002, 2003, 2004, 2005)	

HIV Disease Summary

Information as of October 15, 2006 (based on 2000 population of 6,080,485)

HIV - without AIDS to date:

314	New HIV cases from November 2005 thru October 2006	12-month incidence	5.46 cases/100,000
3,632	Total HIV-positive, alive and without AIDS on October 15, 2006	Point prevalence	63.14 cases/100,000

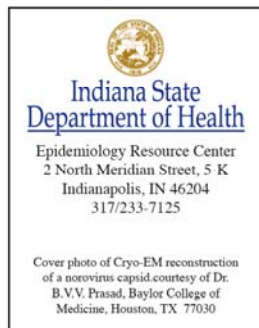
AIDS cases to date:

301	New AIDS cases from November 2005 thru October 2006	12-month incidence	5.23 cases/100,000
3,881	Total AIDS cases, alive on October 15, 2006	Point prevalence	67.47 cases/100,000
8,063	Total AIDS cases, cumulative (alive and dead)		

REPORTED CASES

 of selected notifiable diseases

Disease	Cases Reported in October MMWR Weeks 40-43		Cumulative Cases Reported January – October MMWR Weeks 1-43	
	2005	2006	2005	2006
Campylobacteriosis	47	49	381	457
Chlamydia	1,517	1,460	16,607	16,357
<i>E. coli</i> O157:H7	14	10	59	76
Hepatitis A	3	5	17	29
Hepatitis B	3	5	33	47
Invasive Drug Resistant <i>S. pneumoniae</i> (DRSP)	3	8	160	126
Invasive pneumococcal (less than 5 years of age)	5	2	59	54
Gonorrhea	581	658	6,691	7,285
Legionellosis	6	2	26	29
Lyme Disease	4	1	31	17
Measles	0	0	33	1
Meningococcal, invasive	0	1	18	21
Mumps	0	0	1	10
Pertussis	35	9	276	193
Rocky Mountain Spotted Fever	0	0	0	4
Salmonellosis	80	76	543	760
Shigellosis	32	11	151	126
Syphilis (Primary and Secondary)	6	9	55	75
Tuberculosis	6	6	112	99
Animal Rabies	0	0	11 (bats)	11 (bats)
For information on reporting of communicable diseases in Indiana, call the <i>Epidemiology Resource Center</i> at (317) 233-7125.				



The *Indiana Epidemiology Newsletter* is published monthly by the Indiana State Department of Health to provide epidemiologic information to Indiana health care professionals, public health officials, and communities.

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